Supporting Information

Polydopamine-Based 3D Colloidal Photonic Materials: Structural Color Balls and Fibers from Melanin-Like Particles with Polydopamine Shell Layers

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Table S1 Summary of P(St-DVB)@PDA core shell particles.

sample	Diameter of core particles [nm][a]	CV of core particles [%][a]	Diameter of core-shell particles [nm][a]	CV of core-shell particles [%][a]	PDA shell thickness [nm][b]
$P(St\text{-}DVB)_{184}@PDA_{3.5}$	184	4.97	191	5.85	3.5
$P(St\text{-}DVB)_{234}@PDA_{4}$	234	4.90	242	4.95	4
$P(St\text{-}DVB)_{262}@PDA_{3.5}$	262	3.65	269	3.89	3.5

[a] In each sample, the sizes of 100 particles were measured using SEM to calculate the diameter and coefficient of variation (CV) of the particles. [b] PDA shell layer thickness, measured by SEM, was calculated according to the following formula: Shell layer thickness = [(Diameter of core-shell particles) – (Diameter of core particles)] / 2

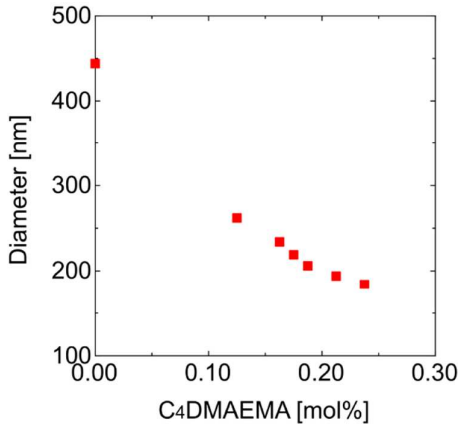

Figure S1 Plots of core particles diameters as a function of C_4DMAEMA feed concentrations with respect to St.

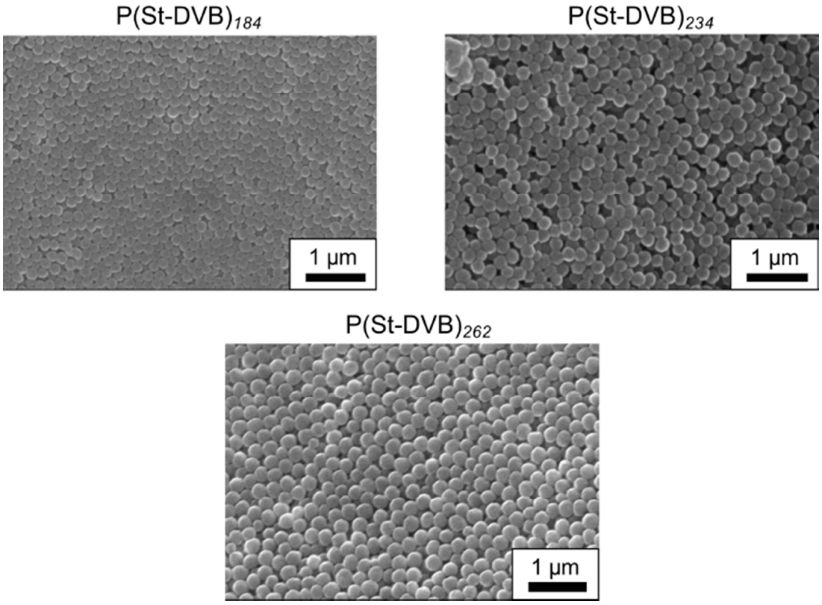

Figure S2 SEM images of P(St-DVB)$_{184}$, P(St-DVB)$_{234}$, and P(St-DVB)$_{262}$ core particles.

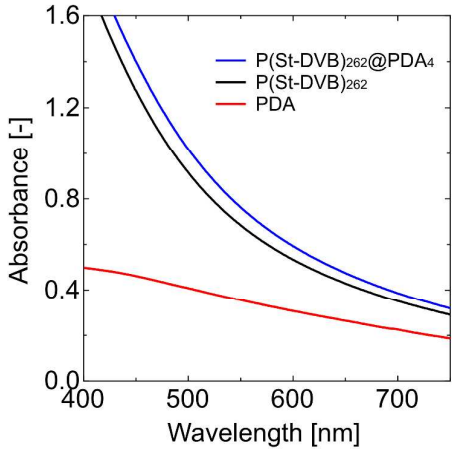

Figure S3 UV-vis absorbance spectra of P(St-DVB)$_{234}$ core particles, P(St-DVB)$_{234}$@PDA$_4$ particles, and PDA particles (concentration of particles: 0.01 wt%).

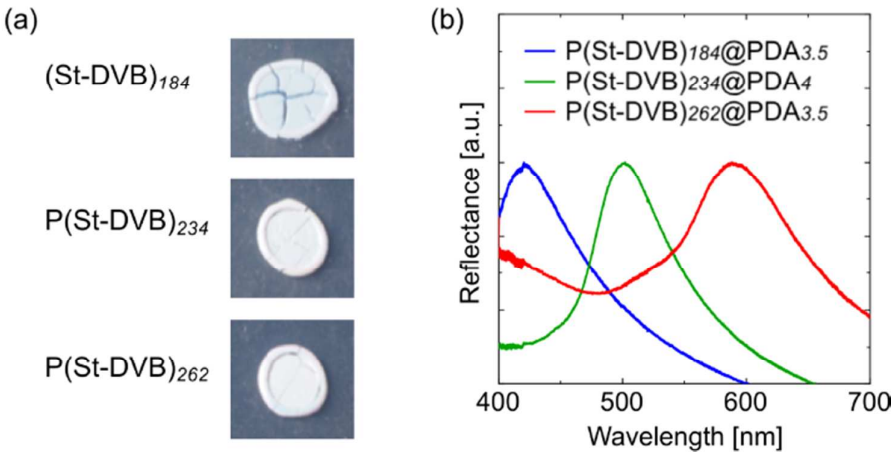

Figure S4 (a) Photographs of structural color pellets prepared using P(St-DVB)$_{184}$, P(St-DVB)$_{234}$, and P(St-DVB)$_{262}$ core particles. (b) Refraction spectra of pellets shown in (a).

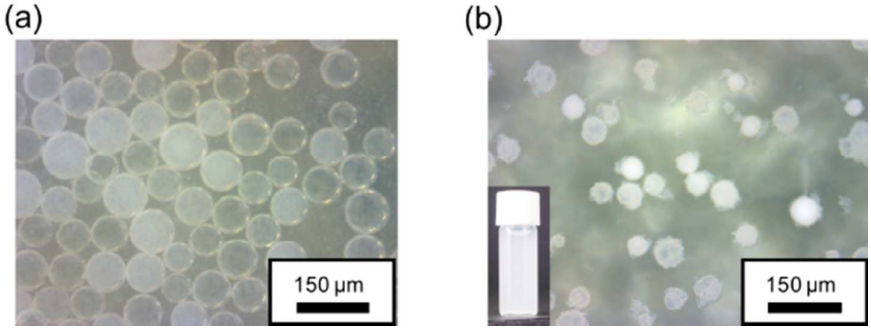

Figure S5 Optical microscope images of W/O emulsions containing P(St-DVB)$_{262}$@PDA$_{3.5}$ core particles after heating for (a) 0 h and (b) 4 h (Inset shows the photograph of dodecane dispersions of W/O emulsions).

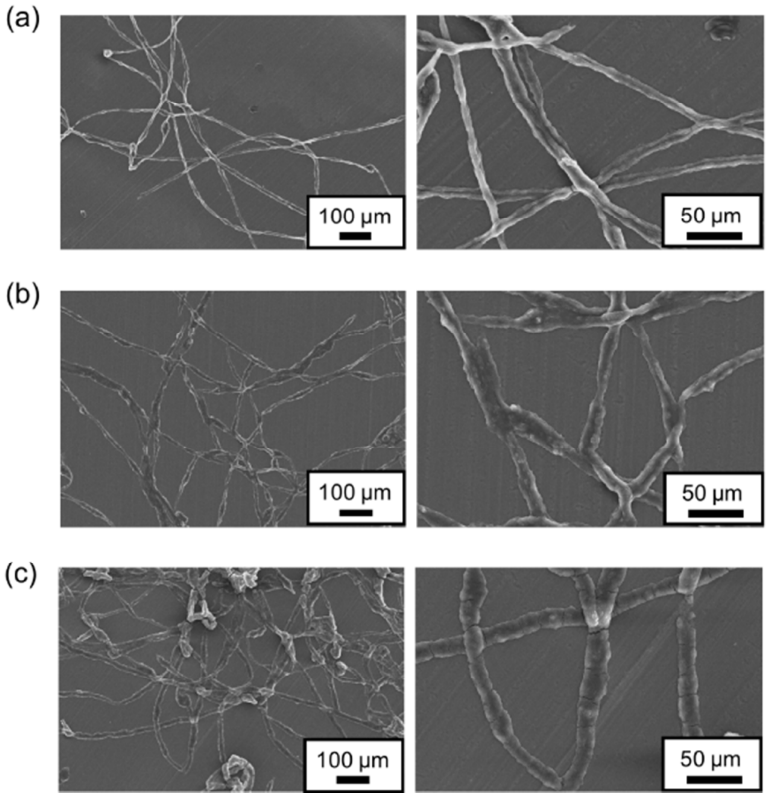

Figure S6 SEM images of structural color fibers. The ratio of water dispersion of core-shell particles and PVP solution were (a) 6/1, (b) 8/1, and (c)10/1.